What is claimed is:

1. An optical channel power equalizer for equalizing per-channel power levels of a multi-channel optical signal, in which a plurality of channels are multiplexed and amplified, the optical channel power equalizer comprising:

an optical spectrum measurement unit that extracts a portion of the amplified optical signal and measures the per-channel power levels of the extracted optical signal;

a controller that compares the measured power levels with a predetermined reference value, and determines to output the degrees of attenuation per channel based on differences between the measured per-channel power levels and the reference value; and

a per-channel optical attenuation unit that attenuates the per-channel power levels of a plurality of input optical signals based on the degrees of attenuation and outputs the attenuated optical signals as the plurality of channels.

2. The optical channel power equalizer of claim 1, wherein the optical spectrum measurement unit includes:

an optical input unit that adjusts the spot size of the input optical signal;

a lens that collimates in parallel a light that is dispersed and input by the optical input unit;

an optical wavelength separator that separates a light passing through the lens in a wavelength unit;

a phase delayer that delays phases to change polarization states of the per-wavelength separated lights;

a plane mirror that reflects the lights passing through the phase delayer; and

an optical detection unit that receives to measure the power levels of the lights being reflected by the plane mirror and passing through the phase delayer, the optical wavelength separator, and the lens, sequentially.

3. The optical channel power equalizer of claim 2, wherein the optical wavelength separator is a diffraction grating.

4. The optical channel power equalizer of claim 3, wherein the plane mirror is tilted at an angle at which the lights input from the optical wavelength

separator can be collimated by the lens at a different position of the lens, compared to the light input from the optical input unit.

5. The optical channel power equalizer of claim 3, wherein the optical detecting unit is a combination of a plurality of photo diodes that convert the per-channel power levels of the lights into electrical signals.

6. The optical channel power equalizer of claim 2, wherein the plane mirror is tilted at an angle at which the lights input from the optical wavelength separator can be collimated by the lens at a different position of the lens, compared to the light input from the optical input unit.

7. The optical channel power equalizer of claim 1, wherein the per-channel optical attenuation unit comprises a plurality of optical attenuators that attenuate the power levels of each channel of the input optical signals, based on per-channel attenuation degrees input from the controller.